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LID MATERIAL OF PACKAGING BODY FOR MICROWAVE OVEN COOKED FOOD
[DENSHI RENJI CHOURI SHOKUHIN HOUSOUTAI NO FUTAZAI]

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Specification

1. Title of the Device

Lid material of Packaging Body for Microwave Oven Cooked Food

2. Scope of Patent Claims

1. A lid material of packaging body for microwave oven cooked food that is comprised of a multilayer sheet wherein a resin film for a barrier layer, which loses its vapor permeation blocking function by heating vapor on the rear side face of a fiber paper having the required vapor permeability, is formed by lamination, and an air-permeable sheet is laminated, as a covering layer, on said resin film.

3. Detailed Description of the Device

(Technical Field of Industrial Application)

This device relates to an improvement in a lid material of a packaging body for microwave oven cooked food.

(Prior Art)

The types and quantities of microwave oven cooked foods have increasingly expanded and diversified recently. Needless to say, many ideas and improvements in food packing materials, packaging modes, and the like are largely contributed thereto.

Although the heat-cooking mode for microwave oven cooked food is based on the type, property, and the like of a food,

from viewpoints, such as the ease and safety of handling a packaging container serving dual purposes, i.e., a cooking container, serving implement, and so forth, there are many popular forms of food designed so as to be subjected to heat-cooking inside a microwave oven as is sealed inside a packaging container, and the container unsealed after cooking.

When foods that are heat-cooked as is sealed inside such a packaging container contain a relatively large amount of moisture and require a steaming treatment or the like in the heating process, a steam pressure regulating structure able to suitably release the steam inside the container to the outside is required so that the prescribed heat-cooking is performed without causing damage or like to the container owing to the large amount of pressure of the steam generated from the food thereof.

Figure 4 shows a conventional packaging body that is provided with a steam pressure regulating function. This packaging body uses, as a lid material 40, a laminated sheet wherein a film 41, in which steam release holes $h, h \cdots$ were dispersingly formed, and an unperforated film 42 used for closing the steam release holes were joined via an adhesive layer 43, and has a form wherein it was hermetically sealed by bonding S to an opening in the top part of a packaging main body 20. Only the upper layer

film 42 of the lid material 40 is peeled off while performing heat-

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cooking of the food inside the container, the steam release holes h, h ... in the film 41 in the lower layer are exposed, and the steam produced from the food F is released to the outside through the steam release holes h, h ... in the heat-cooking process.

(Problems to be Solved by the Device)

The above-mentioned packaging body has a reliable steam release effect by means of steam release holes h, h ... formed in lid member 40, and moreover, the steam pressure inside the container can be regulated by increasing/decreasing the hole diameter thereof or the number of holes. But during heat-cooking with a microwave oven, time and labor are required for peeling the upper layer film 42 of lid material 40, which is extremely troublesome. Moreover, when directions displayed on the container surface that are applied to heat-cooking are overlooked upon peeling the upper layer film 42, or one forgets to peel it while knowing that, not only can steam not be released or the expected cooked state finished, but damage to the container and so forth are invited in association with an abnormal pressure rise in the container.

Moreover, using an adhesive 43 between film 41 having steam

release holes and unperforated film 42 in the upper layer has also been considered in place of a material whose adhesive action is lost or weakened by steam heat, so that the interface between film 41 and film 42 is peeled apart by the action of the heat and pressure of the steam in the heat-cooking process, as a contrivance for eliminating the time and labor for peeling apart upper layer film 42 and avoiding trouble caused by forgetting to peel it apart. However, it is only logical to conclude that it is not easy to reliably separate the adhesive interface between two sheets of film 41 and 42 by the action of the steam heat and pressure, and the reliability is unsatisfactory.

This device was accomplished to solve the above-mentioned problems related to a packaging body for microwave oven cooked food.

(Means for Solving the Problems, and Effects of the Invention)

The lid material of a packaging body for microwave oven cooked food of this device is characterized by comprising a multilayer sheet wherein a resin film for a barrier layer, which loses its vapor permeation blocking function by heating vapor on the rear side face of a fiber paper having the required vapor permeability, is formed by lamination, and an air-permeable sheet is laminated, as a covering layer, on said resin film.

This device will now be described with reference to the

figures showing the working examples. The same reference codes are applied to the members in the drawings that are the same as in Figure 4.

Figure 1 shows an example in which a lid member 10 pertaining to this device and an opening in the top part of a container main body 20 are hermetically sealed and finished in the packaging body using a lid member 10 thereof. 11 is a fiber paper forming the front side of the lid; 12 is a resin film formed on the rear side thereof, as the barrier layer; and 13 is an air-permeable sheet laminated on resin film 12 thereof. 16 is a projecting piece forming a knob while peeling apart lid 10 from the container.

Fiber paper 11 is a vapor-permeable paper-like article having microscopic gaps due to the entangled structure of the constitutional fibers, and has a fixed vapor permeability dependent on the packing density of the fibers, paper thickness, etc. The steam generated from the food in the heat-cooking process of the food by the microwave oven and filling the container permeates through the microscopic gaps of fiber paper 11 and 12 and is discharged to the outside.

It goes without saying that the fiber paper 11 should have the necessary vapor permeability, and in addition to this, be able to withstand contact with steam as well as the heat and

pressure action

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thereof in the heat-cooking process. So-called synthetic paper or the like is useful as such a fiber paper, and "Eleven" (trade name; made by Tokai Pulp Co., Ltd.) is cited as an especially ideal example. The vapor permeability of the fiber paper thereof (JIS P-8117, Oken-type) is about 3 to 20 seconds, and a vapor permeability is provided wherein the steam produced inside the container in the heat-cooking process of various foods is suitably released to the outside.

Resin film 12 is formed by obtaining a uniform film thickness over the entire rear side of fiber paper 11. This resin film 12 integrally joins fiber paper 11 and sheet 13 together as an intermediate layer, and also, functions as a barrier layer that shields from air and moisture permeation of lid member 10, maintains the completely hermetically sealed state of the packaging body as far as the market distribution process of the packaging body where buyers and consumers subject it to heat-cooking, and plays a role in preventing deterioration and degradation of foods. This resin film 12 softens or melts by contact with the steam produced from the food in the heat-cooking process of the food inside a microwave oven, loses its uniform film form that functions as the concerned barrier layer, communicates with the gap between fiber paper 11 and sheet 13

by the change in the film form thereof, and the transmission and release of steam from inside the container is begun.

Above-mentioned resin film 12 is formed as a coated film on fiber paper 11 or sheet 13, or is formed by pressing and adhering the formed film. The film material thereof is a low-melting point resin, hot water-soluble resin, etc. "Kanebo NSC" low-melting point hot-melt resin (made by Kanebo-NSC Ltd.) is cited for the former and "Soafil" (made by Mitsubishi Rayon Co., Ltd.) or the like is cited for the latter.

Sheet 13 plays roles in covering above-mentioned resin film 12, and maintains the softened or melted resin film 12 at the food heat-cooking process by the action of the steam and prevents contact between the softened or melted resin and the food. Sheet 13 is the same as aforesaid fiber paper 11, and moreover, a perforated film or the like can be suitably used. But so that the permeability of fiber paper 11 is not compromised, it must have a permeability that is not identical to that of fiber paper 11, or is larger than it. Moreover, sheet 13 also serves as an adhesive for attaching lid member 10

to the opening of container main body 20, depending on the selection of the material thereof. "Unisel" (nonwoven fabric, made by Unisel Co., Ltd.) is cited as that kind of sheet.

The internal steam pressure generated by the heat-cooking process of the food packaging body on which lid member 10 of this device is used can be kept high/low in accordance with the type, properties, and the like of the food, depending on the selection of the permeability of fiber paper 11. Moreover, the change in the film surface form of resin film 12 owing to the heat of the steam, that is, the timing of the speed of movement from the continuous film surface form that functions as an air and moisture permeation-blocking layer to a form where that barrier function is lost can be regulated by the film thickness thereof, etc.

Moreover, there is also a situation in which a structure is provided in which a resin film 14 also playing a role as an inner seal layer or the like is formed by lamination on the inner side face of lid member 10 of this device by means of printing, bonding, or the like, as shown in Figure 2. It goes without saying that resin film 14 in that situation is not provided on the entire surface of fiber paper 11 and an opening 15 for exposing the surface of fiber paper 11 must be provided so as not to impede release of steam in the heat-

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cooking process.

Although a situation in which a lid material for covering the opening in the top part of container main body 20 is obtained

according to the aforesaid description was cited as an example of forming the packaging body using lid member 10 of this device, of course it does not mean that the lid material is limited thereto. It is also possible to obtain a packaging body wherein a cut-out opening 31 is formed in a portion of a packaging pouch 30, lid member 10 of this device is adhered (S) to opening 31 thereof, and this is hermetically sealed.

(Advantages of the Device)

The packaging body for microwave oven cooked food formed using the lid member of this device does not require time and labor for peeling the outer layer film, as with a conventional lid member, and can be applied to heat-cooking with a microwave oven as is. And not only is the trouble of peeling eliminated, but also, inconveniences associated with forgetting to peel (failure to finish heat-cooking, damage of the packaging form due to steam pressure, etc.) are also avoided. Moreover, the fact that it is outstanding in a steam pressure regulation function is a difference with a lid member having a structure in which the laminated and adhered interface between an outer layer film and inner layer film is peeled apart by steam heat, etc.

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4. Brief Explanation of the Drawings

Figure 1 is a cross section showing a working example of this device; Figures 2 and 3 are cross sections showing other working

examples of this device; and Figure 4 is a cross section showing a conventional example.

10: lid member; 11: fiber paper; 12: resin film; 13: air-permeable sheet; 20: container main body; 30: soften packaging pouch

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Figure 1

第 1 図

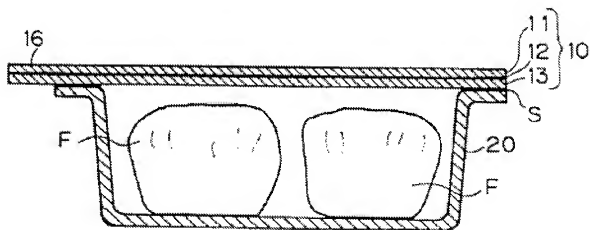
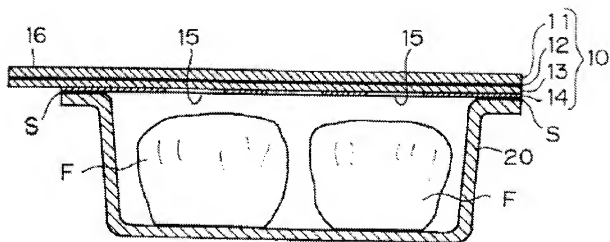


Figure 2

第 2 圖



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Figure 3

第 3 圖

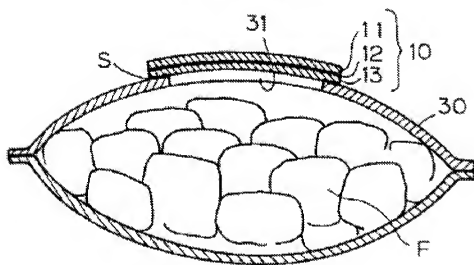


Figure 4

第 4 図

